

Claims

10 1. A fluid power controller device comprising valve
modules (2) arranged in sequence in a row direction (3)
and collected together as an array-like unit (9), such
modules each including a principal valve (13) fitted with
at least one moving valve member (16) and at least one
15 electrically operated valve drive (14) for the principal
valve (13), characterized in that at least two valve
modules (2) placed in sequence in the row direction (3)
are spaced apart with the formation of an intermediate
space (5), a diagnostic module (4) being placed in the
20 intermediate space (5) for the detection of at least one
operational state of one or both of the adjacent principal
valves (13).

25 2. The controller device as set forth in claim 1,
characterized in that between all sequentially following
modules (2) a respective diagnostic module (4) is
arranged.

30 3. The controller device as set forth in claim 1,
characterized in that between sequentially following valve
modules (2) in alternate succession in one case a
diagnostic module (4) for diagnosis of the two respective
adjacent principal valves (13) and in the other case no
diagnostic module (4) is provided.

4. The controller device as set forth in any one of the claims 1 through 3, characterized in that the diagnostic module (4) does extend past the outline of the respectively adjacent valve module (2).

5 5. The controller device as set forth in any one of the claims 1 through 4, characterized in that the valve modules (2) and the diagnostic module or modules (4) are connected with a joint electrical concatenation means (37), which leads to a central electronic control (42) located on board the controller device and/or to an electromechanical interface (38 and 38a), more especially a plug means.

10 15 6. The controller device as set forth in any one of the claims 1 through 5, characterized in that the valve modules (2) and the at least one diagnostic module (4) are collected together by a mechanical connection, as for example by means of ties (8), to constitute a self-supporting assembly.

20 25 30 35 7. The controller device as set forth in any one of the claims 1 through 6, characterized in that for the central supply and/or removal of pressure medium to and, respectively, from the valve modules (2) at least one fluid duct (24) is present extending through all valve modules (2) and diagnostic modules (4) in the row direction (3), such fluid duct being composed of aligned ducts (28a and 28b) of the valve modules (2) and of the diagnostic modules (4), adjacent valve and diagnostic modules (2 and 4) being placed together in a sealing manner.

8. The controller device as set forth in any one of the claims 1 through 6, characterized in that the valve

5 modules (2) and the at least one diagnostic module (4) are seated on a rail-like or plate-like module support (12), in which there extends at least one fluid duct (24) provided for the central supply and/or removal of pressure medium to and, respectively, from the valve modules (2).

10 9. The controller device as set forth in any one of the claims 1 through 8, characterized in that at least one diagnostic module (4) is designed in a disk-like or plate-like form.

15 10. The controller device as set forth in any one of the claim 1 through 9, characterized in that at least one diagnostic module (4) for detection of the at least one operational condition of the principal valve (13) to be diagnosed is provided with sensor means (33) adapted for the output sensor signals.

20 11. The controller device as set forth in claim 10, characterized in that the at least one diagnostic module (4) possesses position sensor means (33a) for the detection of one or more switching positions of the valve member (16) of the at least one adjacent principal valve (13).

25 12. The controller device as set forth in claim 11, characterized in that the position sensor means (33a) possesses proximity sensors able to be activated without contact and more particularly sensors of an inductive type.

30 13. The controller device as set forth in claim 11 or in claim 12, characterized in that the position sensor means (33b) are designed for optical switching position detection.

5 14. The controller device as set forth in any one of the claims 10 through 13, characterized in that at least one diagnostic module (4) possesses pressure sensor means (33c) for the detection of one or more fluid pressures obtaining in at least one adjacent principal valve.

10 15. The controller device as set forth in claim 14, characterized in that the pressure sensor means (33c) are adapted for the detection of the supply pressure in the respective principal valve (13) and/or at least one working pressure.

15 16. The controller device as set forth in any one of claims 10 through 15, characterized in that the principal valve (13) to be diagnosed comprises at least one access opening (34) rendering possible access by the sensor means (33) for desired state information, such opening (34) being open toward the diagnostic module (4) and being covered by the respective diagnostic module (4).

20 25 17. The controller device as set forth in any one of claims 10 through 16, characterized in that at least one diagnostic module (4) possesses evaluating electronic circuitry (36) for the sensor signals supplied by the sensor means (33).

30 18. The controller device as set forth in any one of claims 1 through 17, characterized in that at least one diagnostic module (4) possesses state indicating means (46), more particularly optical indicating means.